DESERT
PLANT LIFE

NOTES ON HASSEANTHUS---II

Reid Moran

MESEMBRYANTHEMUM AND ALLIED GENERA

(Review)

Myron Kimnach

CACTUS SEEDLINGS

November, 1950

Desert Plant Life Magazine

Official Publication AMERICAN SUCCULENT SOCIETIES
Chicago, Long Beach, Los Angeles

The oldest magazine in the English language devoted to the study of cacti and other succulents.

NOVEMBER, 1950

VOLUME 22 NUMBER 9

WHOLE NUMBER 182

DESERT. Published monthly except July and August by the Desert Magazine Publishing Company, 866 South Grand Avenue, Pasadena 2, California. Entered as second-class matter October 14, 1930, at the Post Office at Pasadena, California, under the act of March 3, 1879. Yearly subscription price $1.50. In California 5 cents tax additional. Foreign countries, including Canada and Mexico, $2.00. Single copies 25 cents.

Address all communications to Box 68, Pasadena, California

Editor: ELLEN ROOKSBY

EDITORIAL CONTRIBUTORS

ELISE BERGER
DR. LEON CROIZAT
DR. E. YALE DAWSON
DR. ADELE LEWIS GRANT
H. HERRE
GEORGE LINDSAY
REID MORAN
JACK WHITEHEAD

REID MORAN
University of California
Berkeley, California

NOTES ON HASSEANTHUS — II

Hasseanthus nesioticus, sp. nov.

Cormi subglobosi vel enormes, 1-3 cm longi, diametro 7-20 mm. Folia rosulata 8-16, oblanceolata vel ea exteria saepe spathulata, acuta vel obtusa, 2½-5 cm longa, lamina 5-25 mm lata, 2-5 mm crassa, petiolo 1-7 mm lata, basi 4-12 mm lata. Rami floriferi 3-7 cm alti, foliis 15-20, turgidis, subacutis vel obtusis, infimis 1-2½ cm longis, 5-10 mm latis. Inflorescentia usitate duobus cincinnis simplicibus constans. Flores ut in *H. Blochmania* odorati. Calyx diametro 5-6 mm, 4-6 mm altus, basi rotundatus, segmentis trianguli-ovatis, 3-4 mm longis, 2-3 mm latis. Petala alba, carina basique plus minusve flavovirentia, elliptica, acuta, 7-14 mm longa, 3½-5½ mm lata, 1-2 mm connata, suberecta vel patulo-ascendentia. Filamenta 5-8 mm longa, 1-2 mm adnata. Antherae circa 1½ mm longae, luteae vel aurantiae. Squamae albidae, ½-1 mm latae. Carpella erecta, contingentia vel separata, 5-8½ mm alta. Folliculi ascendentes, marginibus ventralibus a circa 60-75° acclivibus.

Corms subglobose to irregular, 1-2 (-3) cm long, 7-15 (-20) mm thick. Rosette leaves 8-16, oblanceolate or the outer often spatulate, acute to obtuse, 2½-3½ (-5) cm long, 5-15 (-25) mm wide, 2-5 mm thick, the petioles 1-4 (-7) mm wide, the base 4-12 mm wide. Floral stems 3-7 (-10) cm tall, 1-3 mm thick at the base, slightly thicker above, leafy to within 1-2 cm of the base. Cauline leaves 15-20, triangular-lanceolate to -ovate, subacute to obtuse, turgid, the lowermost 1-2½ cm long, 5-10 mm wide, 3-6 mm thick. Inflorescence usually of two simple branches, each bearing 3-8 flowers. Pedicels erect, 1-2 mm long. Flowers with an odor as in *H. Blochmaniae*. Calyx 5-6 mm in diameter, 4-6 mm high, rounded below, the segments triangular-ovate, 3-4 mm long, 2-3 mm wide. Petals white above, yellowish green on the keel and toward the base, elliptic, acute, 7-14 mm long, 3½-5½ mm wide, connate 1-2 mm, suberect to ascending-spreading, the corolla 4-5 mm in diameter at the base, 5-18 mm in diameter at the apex. Filaments 5-8 mm long, adnate 1-2 mm; anthers yellow or orange, about 1½ mm long. Scales whitish, ½-1 mm wide. Carpels at anthesis erect, appressed or separated, the ovaries 3½-5½ mm long, with about 10-20 ovules, the styles 1½-3 mm long. Submature follicles ascending, their ventral margins about 60-75° above the horizontal. Chromosome number: $n=34$.

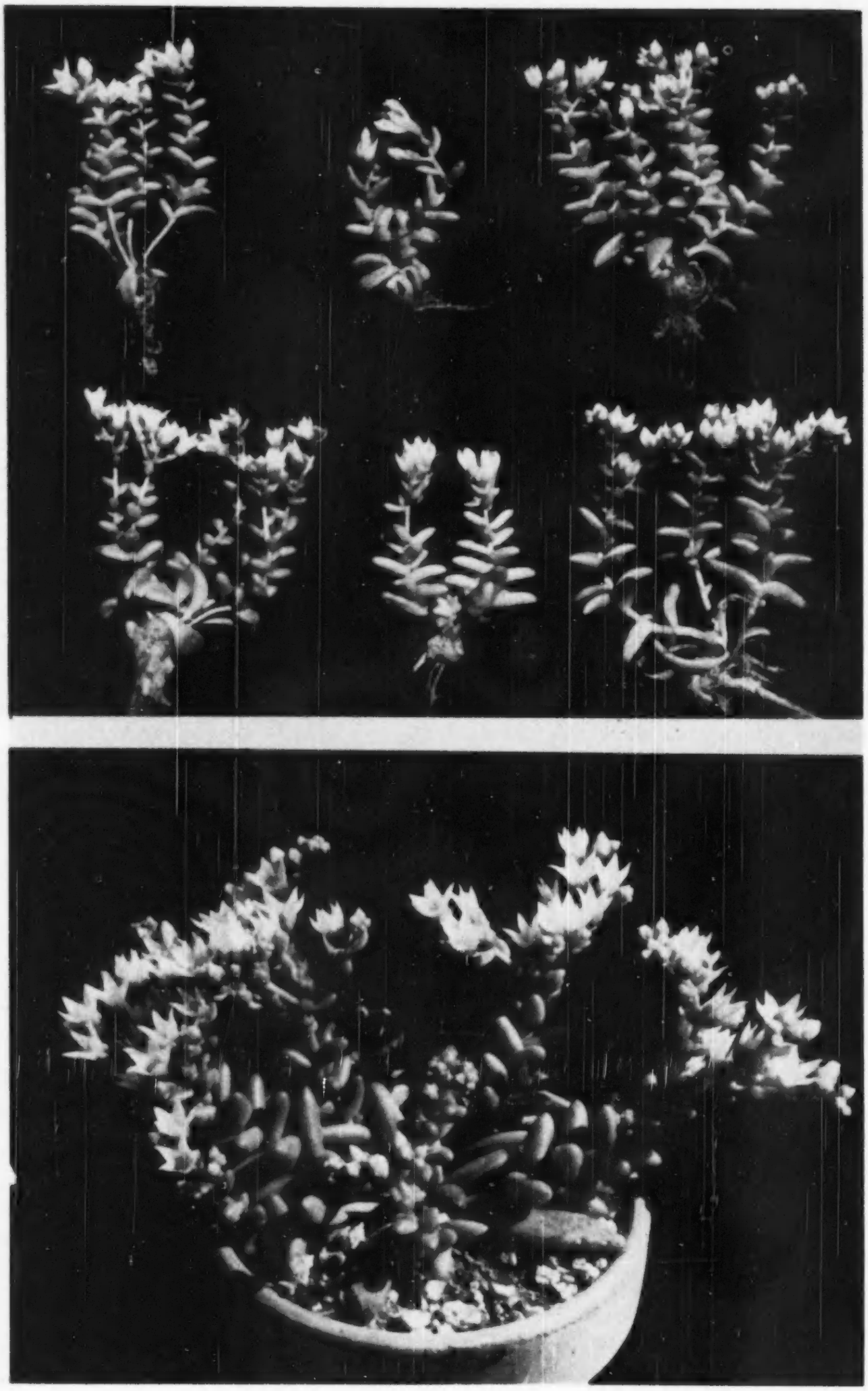


FIG. 5. *Hasseanthus nesioticus.* Cultivated plants from Santa Cruz Island, California, May 6, 1950 *(3362)*.

FIG. 6. *Hasseanthus nesioticus.* Robust cultivated plant from Santa Cruz Island, California, May 6, 1950 *(3362)*.

TYPE COLLECTION: Flat area near edge of sea bluff, Fraser Point, Santa Cruz Island, California (near 34°03.5' N, 119°55.8' W), March 12, 1950, *Moran 3362*. Grown at the University of California Botanical Garden. The type specimen is number 860,247 in the Herbarium of the University of California at Berkeley.

DISTRIBUTION: Known only from the type collection.

Hasseanthus nesioticus differs from the other three species of the genus in its broader and more erect petals and its more erect carpels. It seems closest to *H. Blochmaniae* because of its turgid and often obtuse leaves and its white petals and especially because of the similar odor of its flowers. In the other two species, the petals are yellow and the flowers odorless. Besides having the petals and carpels more erect, *H. nesioticus* differs from *H. Blochmaniae* in several respects. The rosette leaves are markedly broader, not only above but also in the petiolar region and at the base. The cauline leaves are more numerous, longer, and broader. And the petals are united higher above the base.

Dr. Uhl reports a haploid number of 34 chromosomes for *H. nesioticus* as compared with 17 for most other collections of *Hasseanthus*. In view of the relatively erect petals and carpels and the broad leaves, this species could scarcely be an autotetraploid based on any known diploid. It might, however, be an allotetraploid. The general similarity and especially the odor of the flowers suggest that, if this is the case, one parent was close to *H. Blochmaniae*. If so, *H. nesioticus* probably is more or less intermediate between *H. Blochmaniae* and the other parent. The unknown parent therefore probably would differ from *H. nesioticus* in having still more erect petals and carpels and broader leaves. Thus if *H. nesioticus* is an allotetraploid with *H. Blochmaniae* as one parent, the other parent may have been a member of EUDUDLEYA. Although no hybrids are known between EUDUDLEYA and *Hasseanthus* putative natural hybrids between EUDUDLEYA and STYLOPHYLLUM and between STYLOPHYLLUM and *Hasseanthus* have been found. It is difficult to suggest what species of EUDUDLEYA, if any living species, might have been the other parent of *H. nesioticus*. The only diploid species of *Dudleya* known to occur on Santa Cruz Island at present is *D. candelabrum* Rose, a large plant that does not seem a likely parent.

Hasseanthus nesioticus occurs at the west end of Santa Cruz Island and *H. Blochmaniae* subsp. *insularis* at the east end of Santa Rosa Island. The two populations thus are about 7½ miles apart, separated by a channel less than 25 fathoms deep. The two islands are supposed to have been connected during the Pleistocene. However, *H. nesioticus* does not seem more similar to *H. Blochmaniae* subsp. *insularis* than to *H. Blochmaniae* subsp. *Blochmaniae* of the mainland.

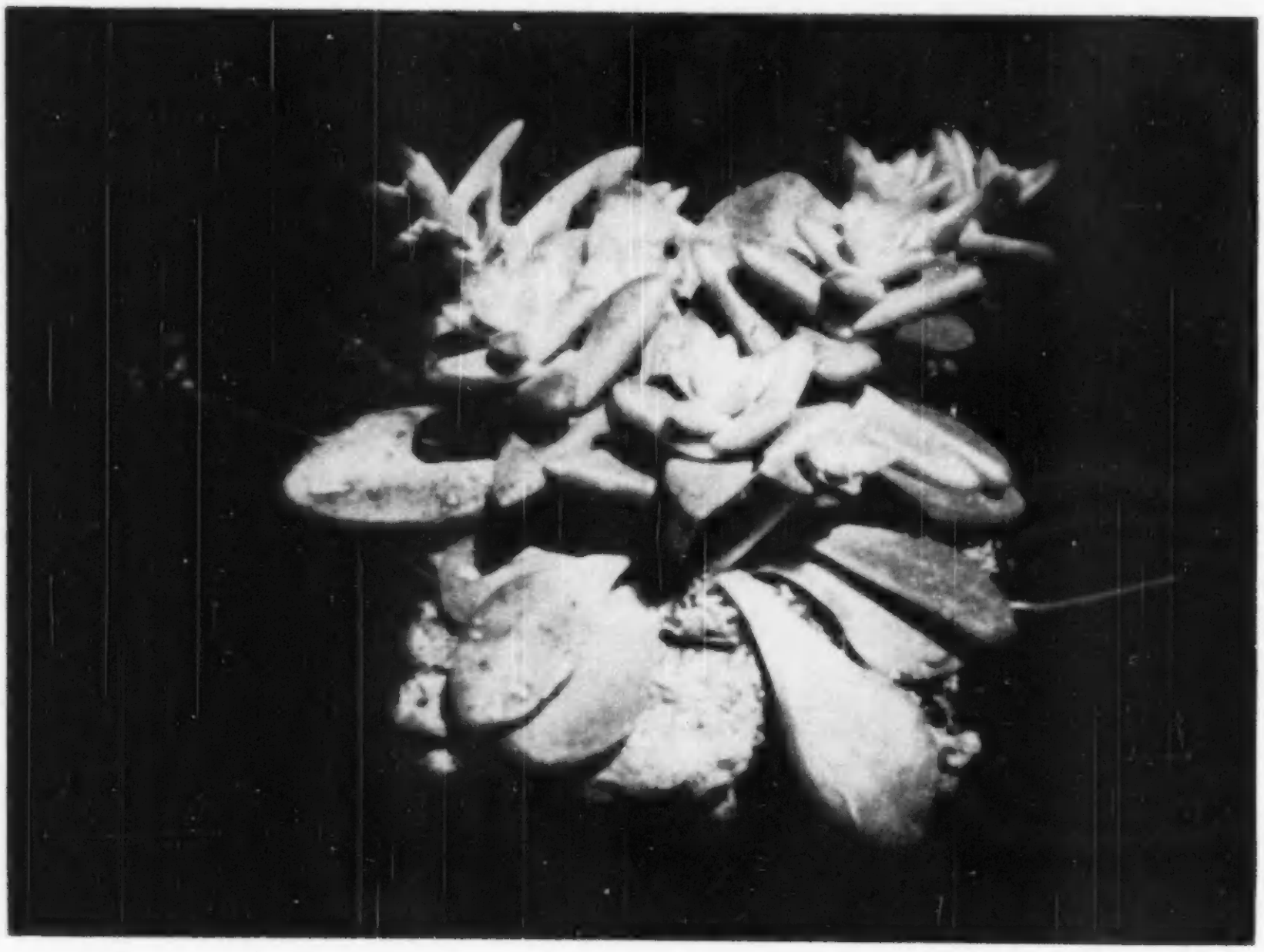


FIG. 7. *Hasseanthus nesioticus.* Robust plant, Santa Cruz Island, California, March 12, 1950 *(3362)*.

Hasseanthus variegatus (S. Watson) Rose

In the 1945 revision a specimen of *Hasseanthus* (*Gander 5054*, SD) from near Dehesa, San Diego County, was referred to *H. elongatus* Rose, though with the remark that the locality should be checked further. With directions from Mr. Gander, I have re-collected the plant. It grows in red clay soil at about 1200 feet elevation on the north side of the Sweetwater River Canyon, one mile west of Dehesa School. A description follows:

Corms subglobose to oblong, 1-2½ cm long, 5-15 mm in diameter. Rosette leaves 5-12, yellowish green, oblanceolate, acute, 2½-7 cm long, 5-11 mm wide, 2-4 mm thick, the petioles 1-3 mm wide, about ½ mm thick, the base 2-6 mm wide, the margins rounded except at the very base. Floral stems red-lineolate, 13-18 cm tall, 1-2 mm thick at the base, to 3 mm thick at the middle, bearing about 15-21 ascending leaves. Cauline leaves yellowish-green, sparsely red-lineolate, triangular-ovate to -lanceolate, acute, often concave ventrally, especially toward the base, the lowermost 11-30 mm long, 4-10 mm wide, 2-5 mm thick. Cincinni 5-15 cm long, with 4-11 flowers. Calyx 3½-5 mm wide, 2-4 mm high, rounded to tapering below, the segments triangular-ovate, acute, 2-3½ mm long, 1½-2 mm wide. Petals bright yellow, fading whitish, elliptic, acute, 6-8 mm long, 2-2½ mm wide, connate ½-1 mm. Filaments 5-7 mm long; anthers yellow, about 1½ mm long. Carpels suberect but separated, slender, 5-6½ mm tall including styles about 1½ mm long. Follicles gibbous, widespreading, the ventral margins horizontal. Chromosome number: $n=17$.

Dr. Uhl studied two collections (*2784, 3215*) and in each found a haploid chromosome number of 17.

From the living material, it is clear that these plants are not *H. elongatus*. The rosette leaves are usually much broader and somewhat thicker than in *H. elongatus*, and they are quite different in shape, being oblanceolate and strongly narrowed toward the base rather than linear-lanceolate and broadest at or near the base. The cauline leaves are more numerous and generally broader, thicker, and not so sharply acute. And the petals are connate only ½ to 1 mm rather than 1 to 2 mm.

The Dehesa plants seem much closer to *H. variegatus* than to *H. elongatus*. They flower three or four weeks later than *H. variegatus* at its other stations, which are at lower elevations; and their foliage is yellower. Otherwise, they differ mainly in their greater size. Certain herbarium specimens from other localities (e.g. El Cajon, *Brandegee in 1889*, UC) approach the Dehesa plants in height of floral stems and size of corms, though the absence of rosette leaves and the poor preservation of cauline leaves prevent further comparison. Thus it is uncertain whether the Dehesa plants are distinct even in size from all other populations. For the present it seems best to include them in *H. variegatus*.

Hasseanthus variegatus differs from *H. Blochmaniae* in its yellow petals and odorless flowers and in its rosette leaves which are thinner in proportion to their width. Plants collected near Rosarito Beach and Rancho Cuevas on the northern coast of Baja California seem to combine the characters of the two species. Because of the habitat in which they grew and because of the relatively thick rosette leaves, I first took them to be *H. Blochmaniae* subsp. *Blochmaniae;* but the flowers proved to be yellow and odorless. In the 1945 revision, specimens from Rancho Cuevas (*Wiggins 5113*, UC etc.) were referred to *H. variegatus*, and this still seems the best disposition.

KEY TO HASSEANTHUS

A. Petals white; flowers with a musky-sweet odor.

B. Petals erect to ascending, 7-14 mm long, 3½-5½ mm wide, connate 1-2 mm; follicles ascending; leaf bases 4-12 mm wide. Santa Cruz Island ..... 1. *H. nesioticus*

BB. Petals widespreading, 5-10 mm long, 2-4 mm wide, connate usually 1 mm or less; follicles widespreading; leaf bases 1-4 mm wide ..... 2. *H. Blochmaniae*

C. Corms globose to fusiform, usually less than twice longer than thick; cauline leaves 2 or more times longer than wide; rosette leaves 1-6 cm long, the blades usually oblong.

D. Rosette leaves usually 3-12; floral stems 4-12 or more cm tall. Coastal, San Luis Obispo County to northern Baja California ..... 2a. subsp. *Blochmaniae*

DD. Rosette leaves usually 15-30 or more; floral stems 3-7 cm tall. Santa Rosa Island ..... 2b. subsp. *insularis*

CC. Corms oblong, 4-8 times longer than thick; cauline leaves less than 1½ times longer than wide; rosette leaves 7-15 mm long, the blades subglobular. Local on mesas from Del Mar to La Jolla ..... 2c. subsp. *brevifolius*

AA. Petals yellow; flowers odorless; petals widespreading, at least from the middle; follicles widespreading.

E. Rosette leaves oblanceolate, strongly narrowed below, acute to obtuse, 1-7 cm long; leaf bases 1-4 (-6) mm wide; petals connate ½-1 mm. San Diego Region. ..... 3. *H. variegatus*

EE. Rosette leaves linear-lanceolate, not narrowed below, sharply acute, 4-15 cm long; leaf bases 4-10 mm wide; petals connate 1-2 mm. Los Angeles, Orange, and Riverside Counties ..... 4. *H. elongatus*

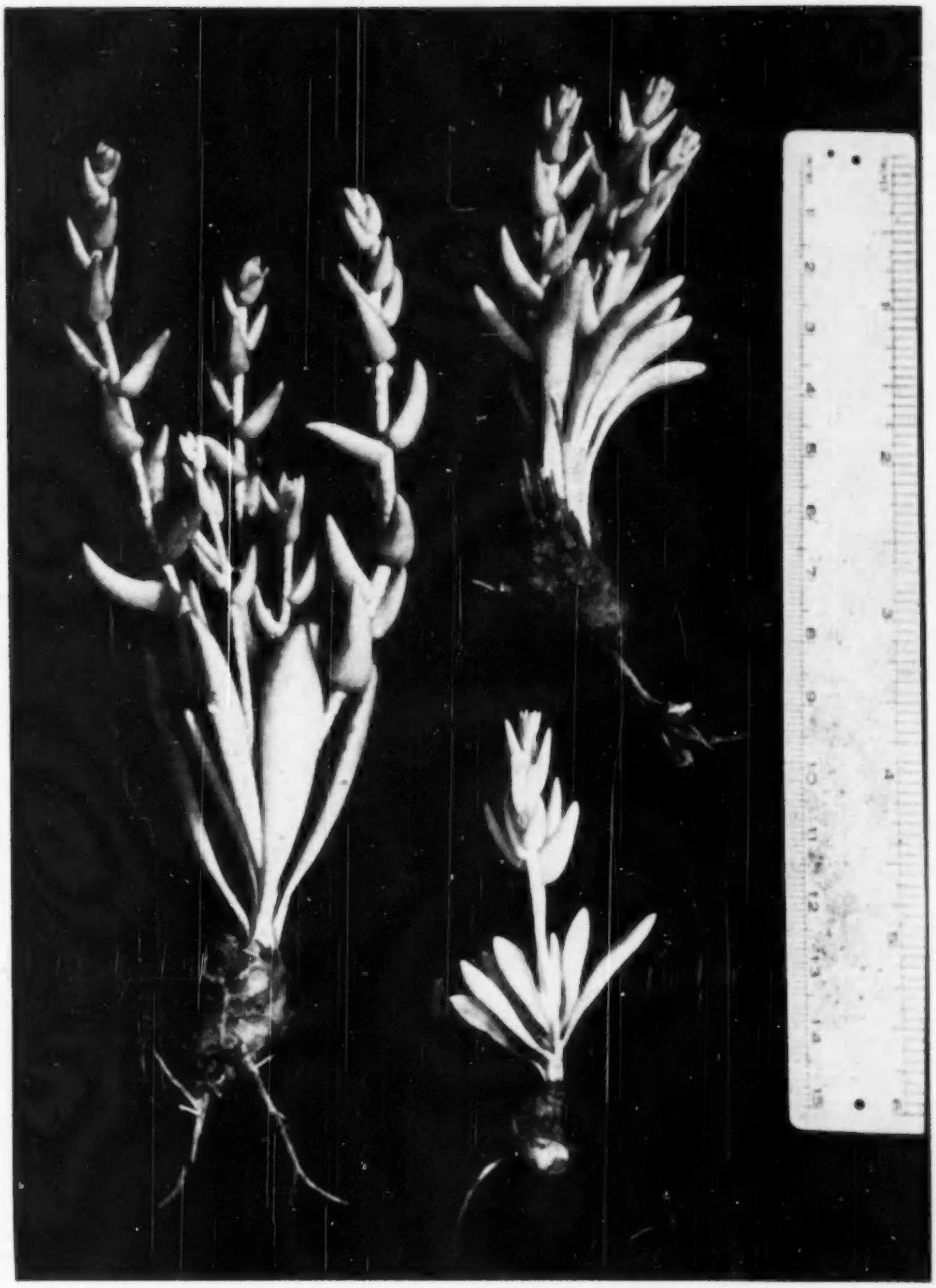


FIG. 8. *Hasseanthus variegatus*. Dehesa, California, April 11, 1949 (*3215*).

☆ Reading and Reference ☆

NOTES ON MESEMBRYANTHEMUM AND ALLIED GENERA. *H. M. L. Bolus, Part III, pp. 189-236. University of Capetown, Rondebosch, South Africa. Price 25 shillings ($3.75). 1950.*

After a lapse of over eleven years Mrs. Bolus' famous "Notes" are now continued in a most ambitious installment. Incidentally, Part II, and previous installments of Part III pages 1-188, are still in print, but Part I has long been a rare-book item.

Collectors with a fondness for mimicry Mesembryanthemums, "living stones" must not overlook this new issue whose main feature is 7 pages of colored plates by B. O. Carter picturing some 48 species of *Conophytum*. These are a continuation of five earlier plates, published in the late 30's, also dealing with this genus of nearly 300 species. *Conophytum* is not as popular horticulturally as *Lithops*, a status that would surely improve following a wide circulation of these plates. In a genus whose number and variability of species can only be compared to *Mammillaria* or *Haworthia*, the value of colored drawings with floral and leaf dissections can be imagined, the more so when one is dealing with plants distinguished by features so difficult to visualize from words alone.

The species pictured here were nearly all described earlier. Among the most intriguing: *C. calculus* var. *protrusum* var. nov., whose orifice has quaint protruding lips colored lip-stick red, as a finishing touch; *C. ramosum* with its little bodies balanced on long stems, rare in the genus; *C. grandiflorum*, a giant with bodies 2½" high, and at the other extreme the 3 mm high *C. minusculum*. An entire plate is devoted to the "windowed" Conophyta, several previously having been referred to *Ophthalmophyllum*. This latter genus is now held distinct only because of its lengthened receptacle tube. As this is lacking in *C. maughanii* and *C. pillansii* they are now considered Conophyta despite their transparent leaf-tips.

Numerous new species and combinations are also given. Ignoring the shrubby types of less interest to collectors, there are of special importance several Conophyta, including another windowed type, *C. acutum; Ruschia edentula* comb. nov. (formerly an *Echinus*), two new Monilarias, an *Argyroderma*, and *Lithops villetii* (closely related to *L. comptonii* and *L. marmorata*). The author also informs us that *Lithops bella* has been collected south of the Orange River, far from its earlier-known S.W. African range. Though not so stated, this would appear to be the first *Lithops* found on both sides of this great river, a barrier the other species seem to have respected. Of much interest is the plate and note on *Monilaria luckhoffii*, wherein the author suggests it to be identical with that puzzling *Maughania insignis* described by N. E. Brown in a later—and thus invalid—publication. No wonder that Dr. Brown did not associate his plant with *Monilaria*, for it little resembles the rest of the species with their branched moniliform stems and two dimorphic pairs of annual leaves.

Finally must be mentioned an innovation in the "Notes", one we hope

will be continued: the photographs or drawings of type specimens, either preserved or living, the latter often showing series of leaf cross-sections. All this is a great aid in visualizing the type on which each species is based, particularly when the originals are maintained half a world away from workers in the Northern Hemisphere.

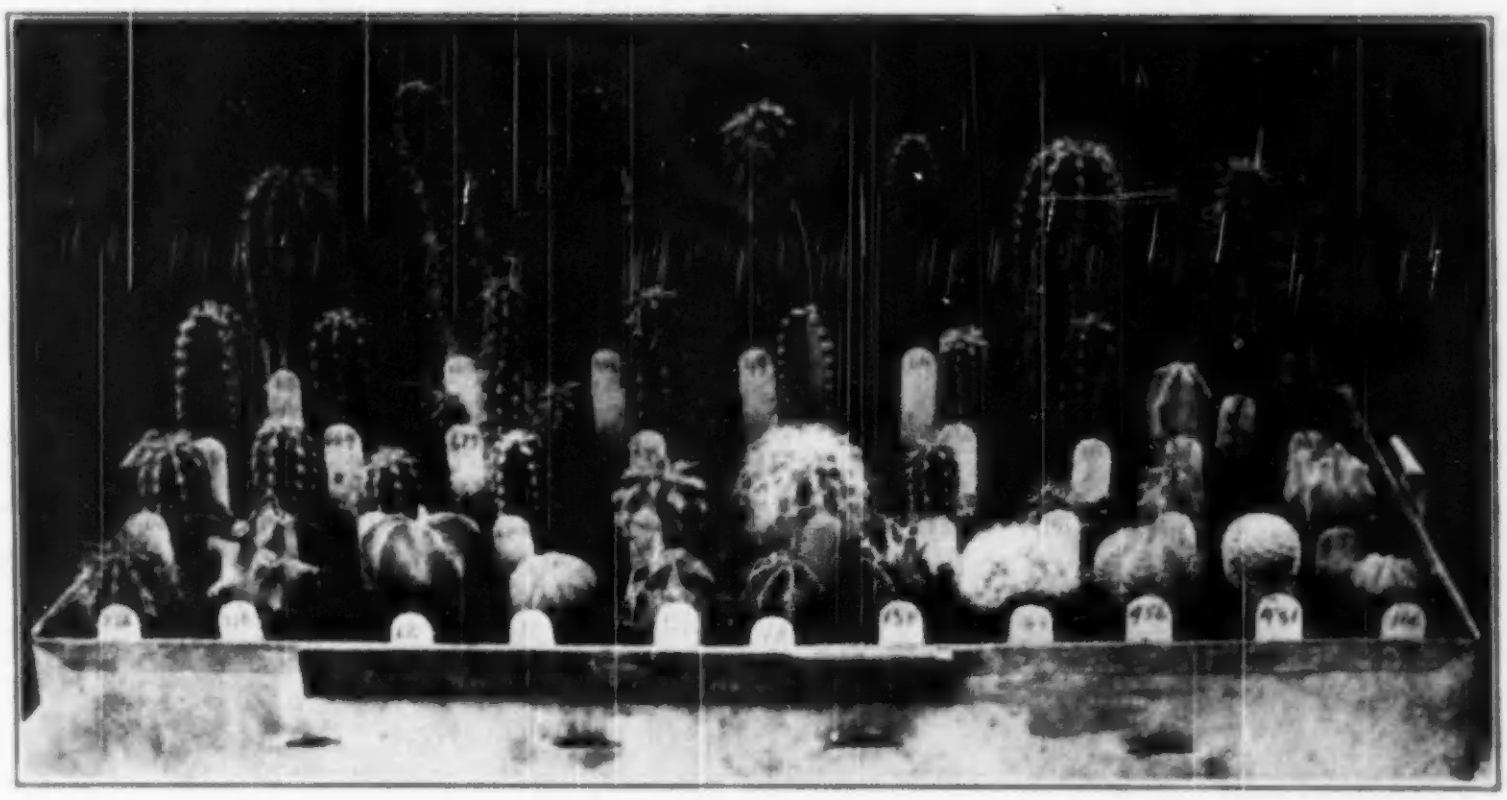
This work might be still more helpful if descriptions of new species were more conveniently arranged either alphabetically or according to botanical relationship and if indexes could be given at the end of each installment instead of the conclusion of part III. As in past installments, the new descriptions are entirely in Latin, usually lacking English notes; and seldom is any comparison given with previous species, so that the relationship of a new entity can be discovered only by reviewing the descriptions of all other species in the genus, a staggering project with the larger genera.

While the main purpose of the "Notes" is simply to record the range of forms in the Mesembryanthemum family, leaving generic monographs to others, we can only hope that some order will soon be brought to this ever-increasing conglomeration of forms, the over-all comprehension growing more difficult with the years.

A complete key to the genera, numbering around 120, would be a desirable beginning, followed by specific keys to the more "definitive" genera—apparently the supply of new species is inexhaustible, but a general survey of what has already been found is greatly needed at this point.

MYRON KIMNACH

Palo Alto
California



CACTUS SEEDLINGS

THE CACTUS JOURNAL

OF GREAT BRITAIN

20 Pages - Informative Articles - Well Illustrated

Published quarterly. 12 Shillings a year with membership 21 Shillings
Send subscriptions to Box 68, Pasadena, California or to
THE EDITOR, 7 Deacons Hill Road, Elstree, Herts, England

THE CACTI OF ARIZONA

By DR. LYMAN BENSON

148 pages of text, 37 plates including 5 colored plates. Gives much helpful information on soil, water and light requirements for growing cacti. An up to date reclassification of all the species and varieties of cacti growing in Arizona. (1950) Bound. **Price — $4.00.**

BOTANICAL BOOKS, 3066 Georgia St., Oakland 2, Calif.

KAKTEEN UND ANDERE SUKKULENTEN — Publication of the newly reorganized Deutsche Kakteengesellschaft. Subscription to start October 1949 as 3 numbers have already been issued. Sole agent in U.S. **Per year —$1.50.**

CACTEES by A. Bertrand & A. Guillaumin. 129 pages, 49 black and white excellent ill., and 10 colored reproductions. Worth price of book. **Price — $2.25.**

BOTANICAL BOOKS

3066 GEORGIA ST., OAKLAND 2, CALIFORNIA

FLORA OF UTAH AND NEVADA

By IVAR TIDESTROM

Priced elsewhere $17.50 **Here $10.00**

CONTRIBUTIONS

FROM

The U.S. National Herbarium

WASHINGTON
GOVERNMENT PRINTING OFFICE

DESERT MAGAZINE PUBLISHING COMPANY
Box 68, Pasadena, California